Preface

This document is prepared with a view to give an introduction to EASYNOW, an educational delivery approach.

The document has two major sections viz.

Section I: EasyNow overview

Section II: EasyNow Technical details

Section I, EasyNow overview gives an introduction to EasyNow approach and the procedures to deliver Educational material through multiple media.

Section II: EasyNow Technical details covers the procedures to achieve the multiple deliveries. The definitions of various technical terms are also covered. The products especially open source distributions and a specially developed Class Room to Learner's Desk a product EzzeNow-CLD are explained in this section.

Best of Educational deliveries !!!

The Author

EASYNOW
An Overview

Introduction

In the modern world, human society has made reading and writing as the standard for intelligent communication. One has to know the spoken and/or written forms of various languages, for instance the “mother tongue” - language spoken at home, the national language spoken by most people in the society, and international language(s) for further learning and conducting business, to be able to communicate effectively.

Since reading and writing is the primary mode through which knowledge is being imparted and exchanged, formal education to acquire these skills has became a basic requirement for human survival.

The Education System

Our education system is designed to introduce knowledge of languages, science, technology, mathematics, etc to help us understand the various aspects of the world we live in.

Currently, this system works on a teacher-learner(s) model. The teacher is supposed to be proficient at imparting knowledge, while the books hold the subject content and thereby implicitly define boundaries to learning. The examination system then measures the knowledge gained through a grading system or traditionally through marks.

The Learning Divide

Due to unprecedented growth of population in India, there is a big gap between the demand and the availability of good teachers. Even though India has around 5000 institutions to formally create teachers and around 150,000 teachers are added every year into an existing pool of over five million teachers, the average Pupil Teacher ratio for India is only 1:42. In addition, there is no homogeneity in the geographical distribution of teachers.

This situation has created a learning block or “Learning Divided” among the various sections of our society, especially for the people in rural locations.

Further, schools get graded by the type of teachers, teacher-student ratio and the

deployed resources. “Smart Schools” are assumed to have computer facilities and to some extent electronic forms of educational material. However, very few schools record good teachers' lectures, and make them available to slow learners and students who miss out classes due to unavoidable reasons like sickness.

Educational Communication

Over the past few years, there has been phenomenal growth in the modes of communication and delivery. The written and the audio/video media are available through various channels of delivery and their accessibility is no longer a big challenge.

In this new scenario, there are questions educators need to consider such as:

- Can communication technology help overcome learning blocks?
- Can good teaching be made available to regions considered unreachable?
- Can mechanisms be designed to preserve the best teaching practices of knowledgeable and articulate teachers for the benefit of our future generations?

Traditionally, classroom based teaching has been complemented by distance learning programs to cater to students who cannot attend a school/university. While these systems have been designed to take education to the learner's door step, they have fallen behind developments in technology and do not make full use of the tools that can bridge the Learning Divide.

Unfortunately, no attempt is being made even to mimic the entertainment industry to reach enthusiastic learners across the various sections of the society distributed far and wide across the country.

A New Approach – EasyNow

In this age of information and communication technology, there are various ways to reach one's audience such as direct to home through satellite, televisions, radios, telephones, cell phones and the internet.

One such innovative approach is **EasyNow**. EasyNow is designed to capture delivered lessons, in an available medium through affordable tools, and provide them in various forms to reach a wide audience.

There are three phases in this approach viz. ***Capture***, ***Prepare*** and ***Deliver***, and all of them allow multiple ways to accomplish the task.

For example, lessons delivered in a conventional classroom where a teacher is using a blackboard and chalk can be captured through voice or speech-text recording of the audio, and complimenting it with screenshots or electronic documents of the blackboard content. Another method is to video record the whole session. The archival and/or distribution can be accomplished in several ways too.

The possible results are:

- Digital audio with paper copy of board

content

- Slide shows of board content synchronized with the audio, for use on a computer
- Movie form of board screenshots integrated with audio
- Video-graphed lessons edited and published

The output thus created can be viewed in many ways such as an individual viewing using cassette/CD players, video players/TV and computers. Mass delivery can be made through radio, television and the internet.
The quality of the output can be modified to meet the constraints of delivery and affordability.

More about EasyNow

The various ways of lesson capture and delivery are elaborated further.

We put the EASYNOW process into four major categories:

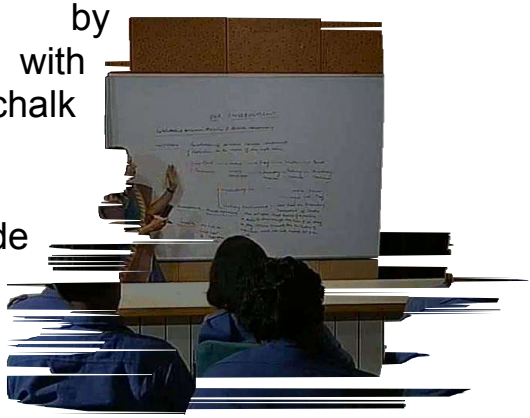
- SOURCE
- Capture
- Preparation/Mapping
- Delivery

Let us examine the steps involved in each process.

Source

The content of a classroom session maybe:

- Lessons delivered in a conventional classroom by teachers with board and chalk
- Lessons delivered through slide shows by a teacher/subject expert



Capture

In the capture phase, any available method/resource can be followed/utilized. All supporting material created by the teachers to deliver their lectures will also be utilized for mass delivery.

- Text of the lesson (paper copy)
- Board content, illustrations, charts, photographs (paper copy)
- Recording of the lesson on an audio media (Live Classroom/ Studio/ off-line)
- Text entered/scanned into computer media (electronic copy)
- Board content, illustrations entered/scanned into computer media (electronic copy)
- Video recording of the lecture

Preparation

- Book form with printed material and illustrations
- Computer based delivery on a media containing slide shows synchronized with audio narration
- Video content on VCD/DVD/Beta containing edited recording of lectures
- Streaming video on internet for broad band and dial up networks

Delivery

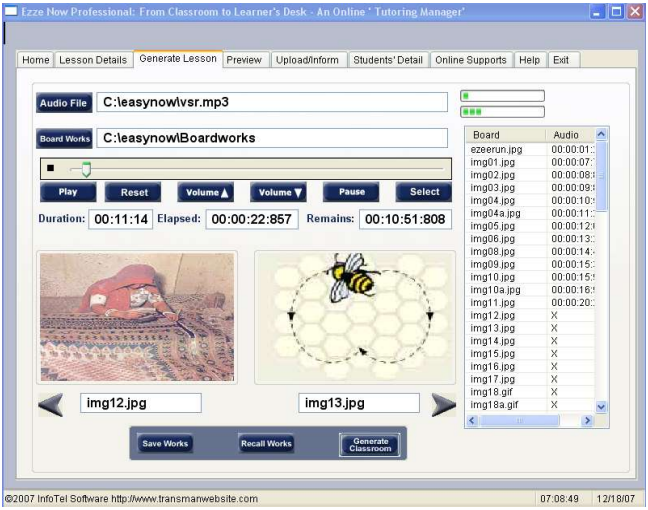
There are nine modes of delivery suggested for a ODL based approach. The teacher generates content in any one of input modes and the system converts it into the other modes.

	Input Mode		Output Mode	
Sr	Lesson Text	Board	Media Form	Equipment
1	Hard-copy text	Hard copy	Book (Paper)	None
2	Text to Voice	Soft-copy	Voice on CD	Pod cast/Internet
3	Recorded Audio	Hard-Copy	AudioCassette/CD , Board content on paper	Cassette player/CD player
4	Recorded Audio	Soft-copy	Slide show on CD	Computer
5	Recorded Audio	Soft-copy	Audio CD	Radio/Board content through Digital Radio or internet download
6	Recorded Audio	Soft-copy	Movie form on CD (VCD/DVD)	Computer/Video Player
7	Recorded Audio	Soft-copy	Slide Show	Internet
8	Video recording	Video recording	Beta/VHS Tapes CDs	Computers Video Player/TV
9	Video recording	Video recording	Streaming Video CDs/FAST CDs	Broad Band Internet

Hard-copy: Paper document, Soft-copy: electronic document

Conclusion

Based on the approaches suggested, several trials have already been carried out using EasyNow. Further discussions and experimentation may be needed to finalize



specific implementation strategies.

Visit http://www.cemca.org for an online demonstration.

EASYNOW
Technical Details

Introduction

In this section EASYNOW preparation and Delivery tools are discussed. Open source software usage is suggested as per application and the availability. As explained in previous section EasyNow looks at lesson preparation from various starting points.

The major sources used in most of the conventional as well as in distance learning approach are:

- ***Hardcopy of the lesson and illustrations***
- ***Audio and the Board works of the teacher from a conventional classroom***
- ***Video graph of the Classroom session by a formal recording in a Electronic Media Centre***

Hard to Soft copy

conventionally lessons are prepared by teachers as Hand written manuscript. They are mapped into Soft copies for mass distribution by Printing/Copying. Preparation of Soft copies will also help for a better archival process. The lesson can also be saved on CDs for further distribution.

The hand drawn illustrations can also be made more presentable using Drawing software available on Computer systems. The illustration can be embedded into the lessons prepared as computer documents.

MS office from MICROSOFT is a widely used software for this purpose. There are many open source products, with desired features are available free of cost through internet download (See the chapter on OPEN SOURCE).

Text to Audio

If the text of the lesson has to be delivered into Audio for Slide shows/ Radio delivery/ POD-casting, the delivery methods which are becoming popular internationally - one has to resort to text to Audio tools. Other method is to record the Audio using simple Audio Recording equipments (see equipment chapter).

What is POD-casting?

A pod-cast is a collection of digital media files which is distributed over the Internet using syndication feeds for playback on portable media players and personal computers.

Pod-casting is also delivering audio content to iPods and other portable media players, so that it can be listened to at the user's convenience. Because pod-casts are typically saved in MP3 format, they can also be listened to on nearly any computer.

There are sites (http://www.odiogo.com),

which support Automatic POD-casting of Textual information.

TEXT TO AUDIO SOFTWARE

There are powerful Text to Audio software systems are available commercially to mimic near human voice. There are versions supporting American, British and Asian English speech. Free versions are supported by Operating systems. (See software product list). They are also tolerably good.

Audio/Illustration to Slide shows

A slide presentation of illustrations/pictures is always used along with presenters Voice for a complete presentation. Audio and illustrations can be combined to make powerful Slide presentation.

Many smart schools prepare the lessons as slide shows for the use in the classroom. EasyNow approach suggests more powerful EasyNow-CLD as an alternative.

The slide show can also be mapped as a Streaming video that can used in Video

players, computers and for Internet delivery. (See the Software tools list for the same).

EzzeNow-CLD

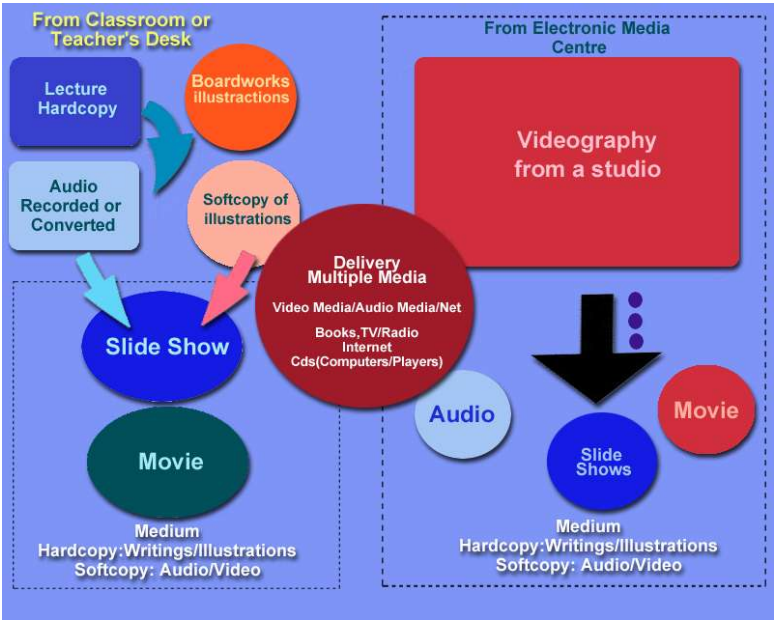
Due to Triband and Broadband internet connectivity have become common online delivery of the classroom sessions have become common. That prove a point that classrooms as a important learning centre has not lost its position.

Still the classroom teacher works capture become meaningful. EzzeNow-CLD is a powerful to prepare and deliver classroom work of teachers.

EasyNow Classroom to Learner's desk

EasyNow Classroom to Learner's desk (EasyNow CLD) is a simple tool available for teachers to record the classroom lesson audio, add the board-works create synchronized slide presentation (optimized file sizes) and load it on the net for the on line viewing and inform the registered students about the lesson availability. Using the

internet, the teacher can also host online classroom support to conduct question-answer and discussion sessions.



The work both capture through normal classroom sessions or through formal Videography can be created as a EzzeNow-CLD deliverables.

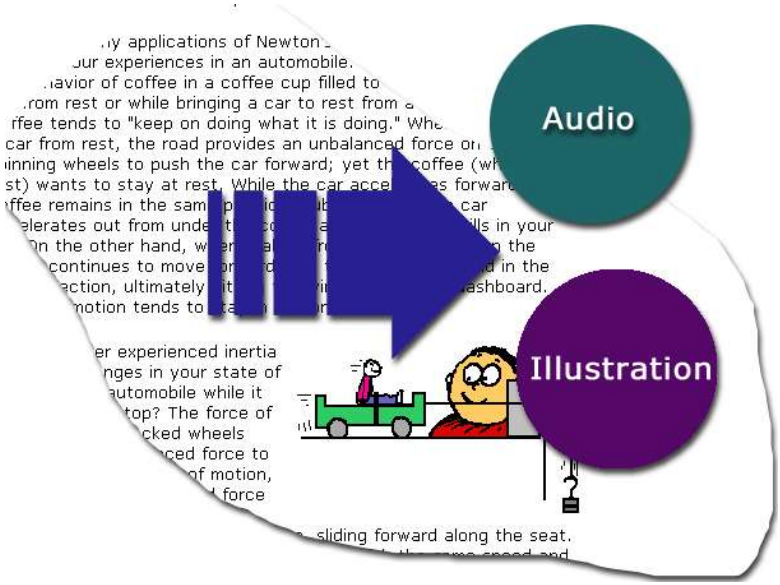
EzzeNow-CLD supports

- Lesson preparation
- Organisation
- Upload to Internet
- Informing Students
- Teacher Student interaction

Teacher's role

Teachers can create the duplication of their classroom work by recording the Audio of their lecture delivery as-is-where-is or create text to

Audio using the tools.



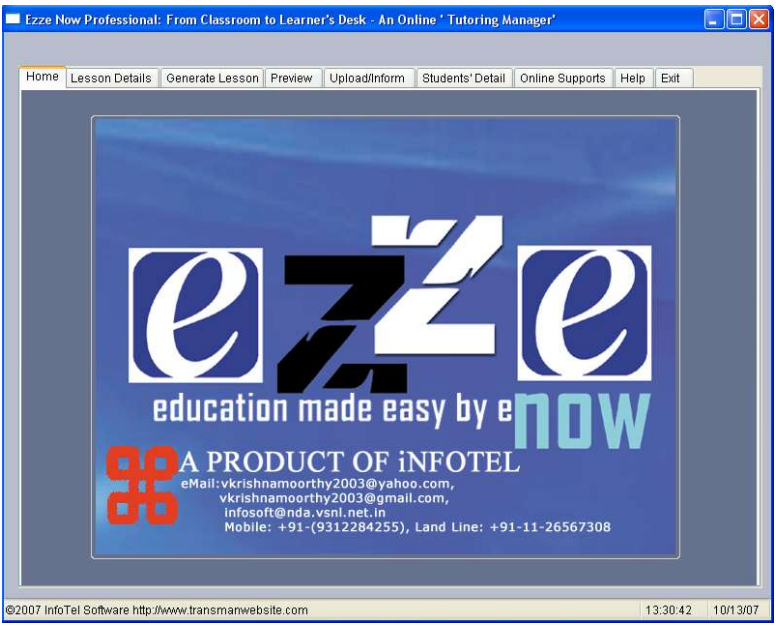
The created audio along with Board writings or illustrations can be integrated using EzzeNow-CLD.

EzzeNow Menu

There are five major functions supported through EzzeNow-CLD.

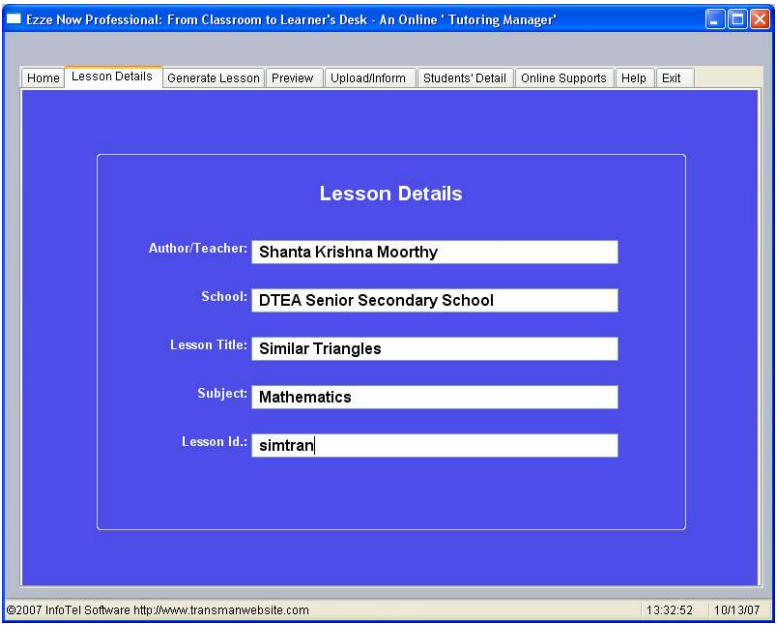
- ❖ Record Teacher/Lesson Details
- ❖ Generate Lesson
- ❖ Preview
- ❖ Upload and Inform students

❖ Online Classroom



Teacher/Lesson Details

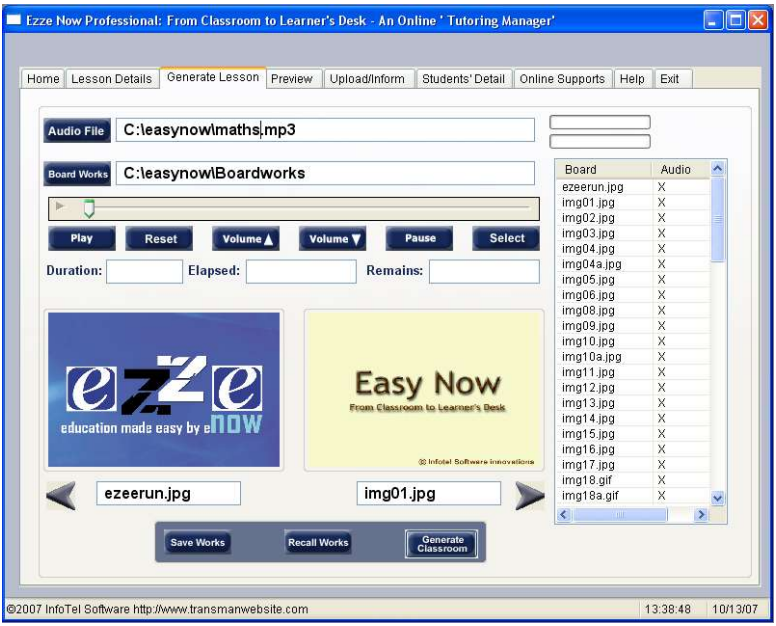
The teacher enters the details including Subject and lesson covered asa first step.



These details are recorded for Lesson archival in a database. The lessons are recalled by students using these details both for online study and offline study using CDs.

Generating Lessons

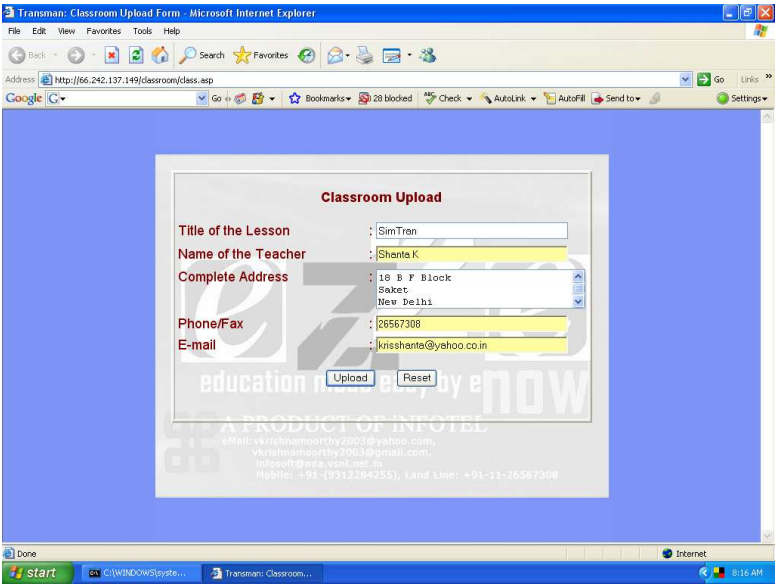
The teacher starts the process by selecting the Audio file and the directory containing the illustration or the Boardworks.



The teacher can use the forward arrow or directly punching the time data can create the slide show in matter of minutes. The preview support can be used for fine tuning of the presentation.

Upload support

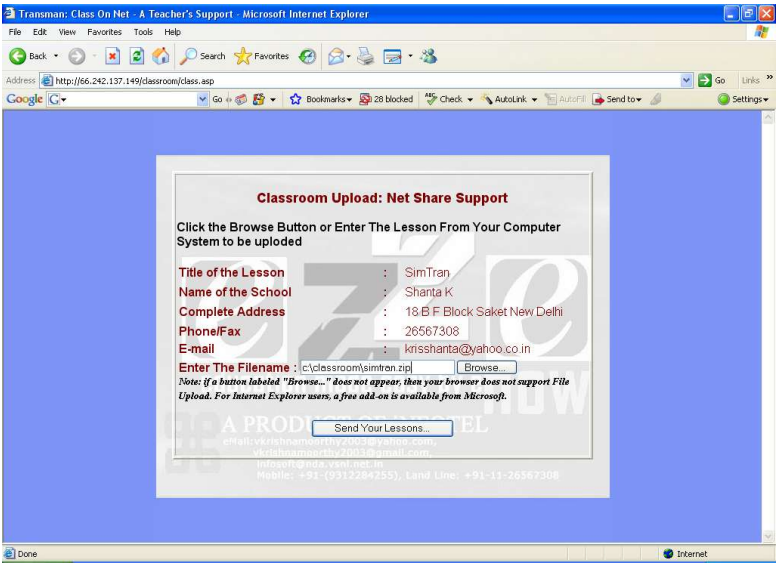
After completion of the Lesson the system Upload/Inform facility is evoked to load the . CLD file created, on to the Net Host.



The upload facility allows the loading after collecting the details of the person carrying out the operation.

Net share support

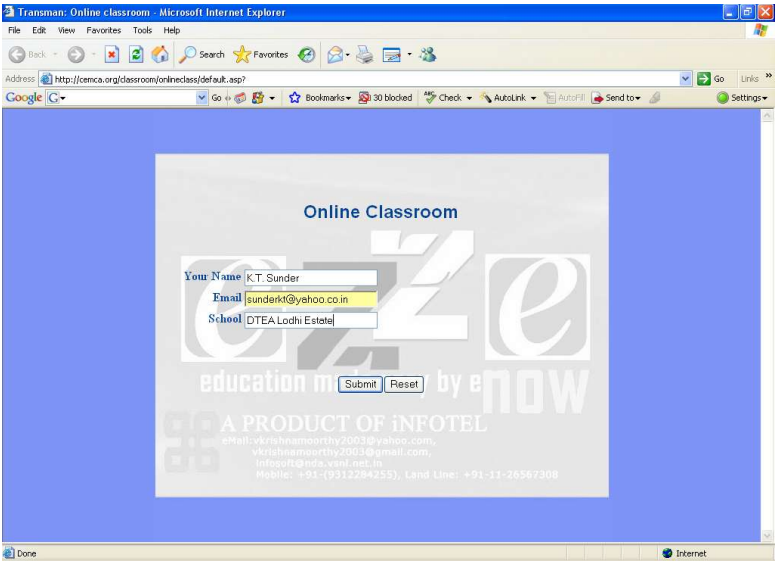
The uploading phase takes the .cld files created throw EzzeNow –CLD into allocated Net Host/Directory.



After uploading, the Inform/Net share phase gets auto-evoked and students get the information through e-Mail about the uploaded lesson and Interaction Schedules.

Online Classroom

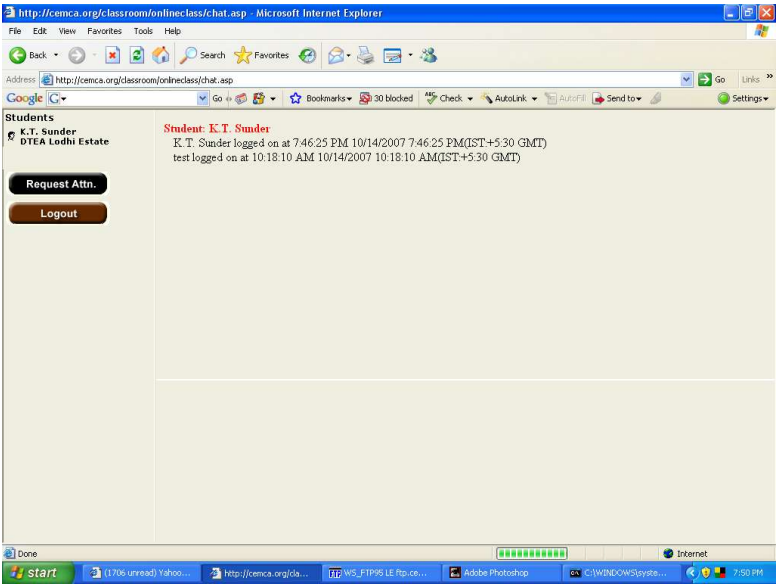
The online classroom feature supports student interaction with teacher as it happens in a classroom, but remotely.



The students joining the classroom using pre-allocated password can ask questions to teacher when permitted and read through questions by other student and teacher's answers for the same.

The Request

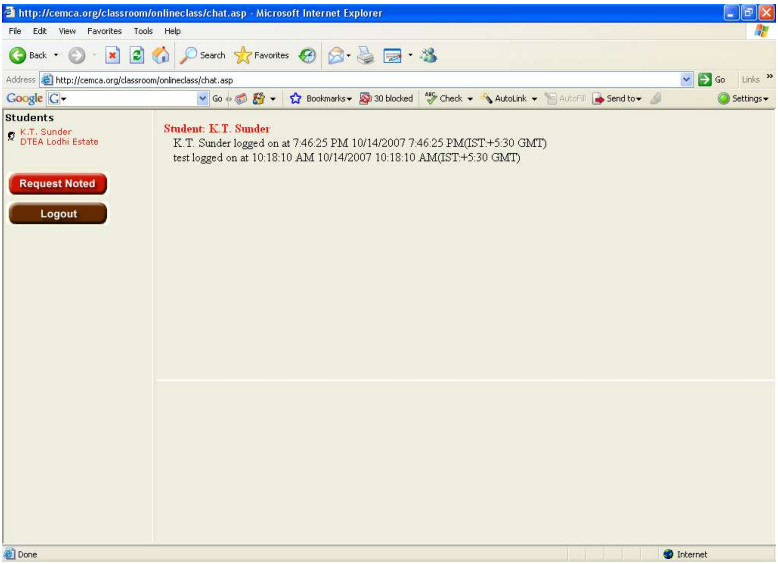
The request phase supports putting hands up and the teacher attention is drawn.



Teacher gets the request and gives permission to ask the question. The system supports powerful management control.

Request Noted

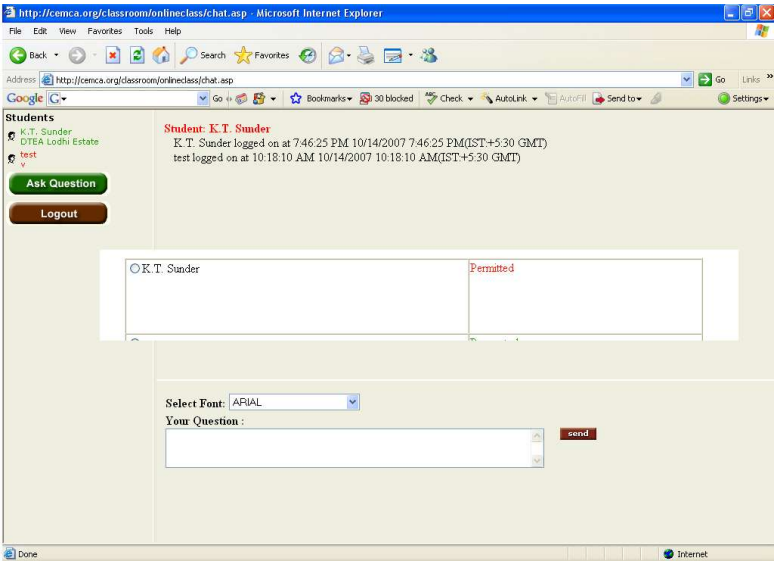
The student gets a flag that the request is noted by the teacher and the student is put on the queue.



The proceedings are constantly displayed on the screen. The classroom goes on LIVE.

Ask Question

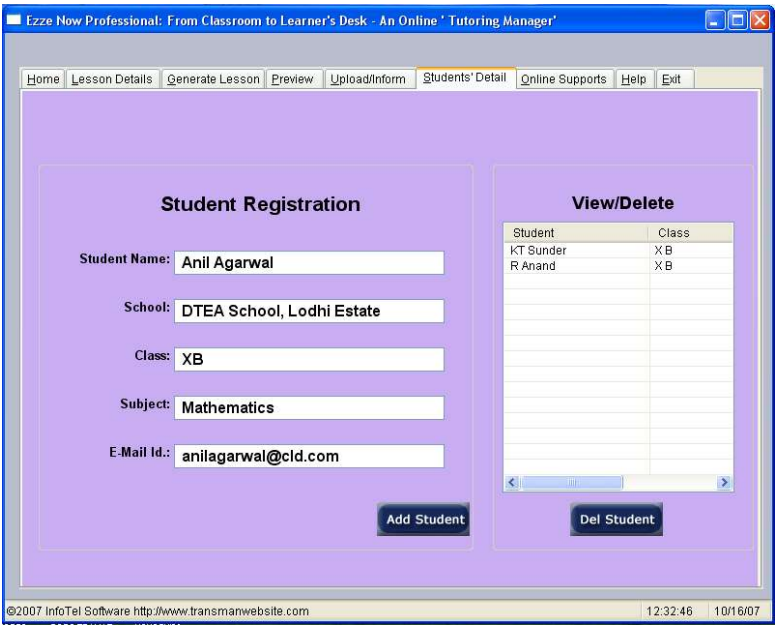
When teacher grants permission Students get a green signal to put up their question.



The teacher responds with the answer online. The Response goes to all student screens. Finally the proceedings are published on the Net automatically by the system.

Student Registration

The students wish to take online classes which is almost like a private tuition session can register themselves online using EzzeNow-CLD.

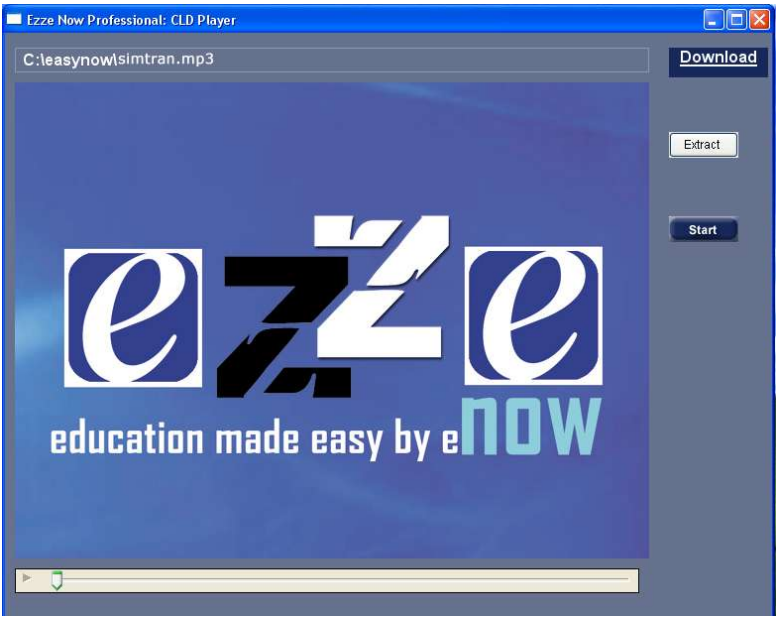


They will get their password allotted and the information regarding Net teaching activities. The will be permitted to download the .cld viewer.

.cld Viewer

.cld files are optimized Slideshows by file size.

The user has to download special viewer to view them on their system.

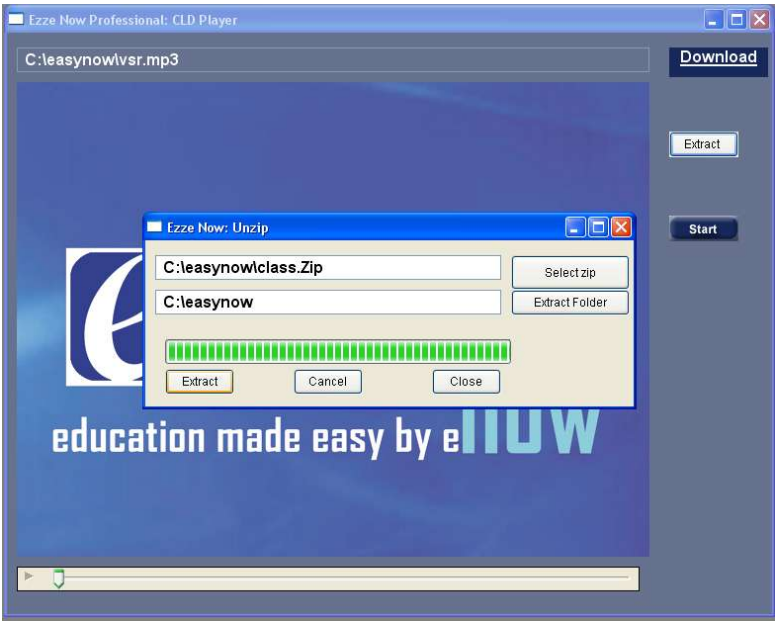


The viewer comes along with the EzzeNow-CLD system.

Teacher makes it available to the students. The registered students are allowed to download the viewer from the Net.

Downloading Lessons

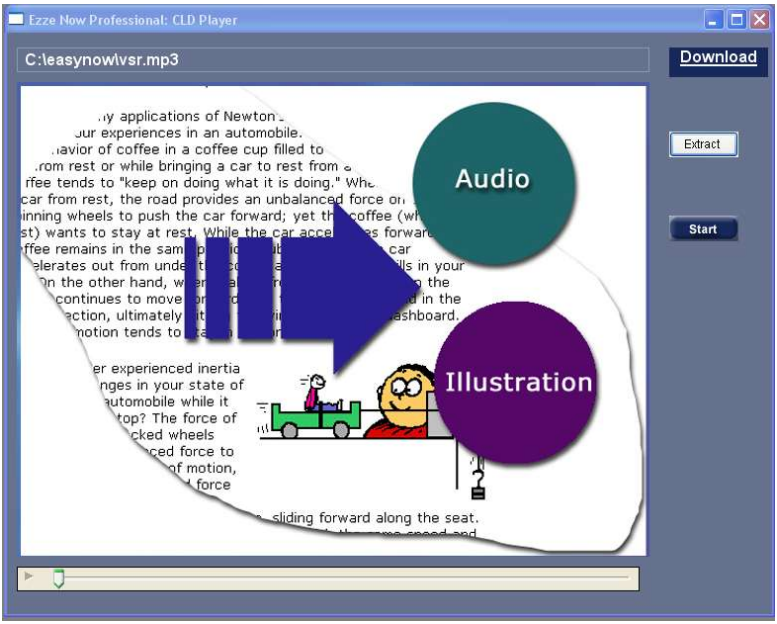
Downloading lessons is a process by which the system gets the lesson to user system for off-line playing.



The .cld viewer includes all required features for download, extract and view.

View the .cld File

The user can use the start button and view the



Slide show.

The optimized compressed file sizes enables the entire classroom – the Audio of the teacher and the illustration – for each of the subject in one DVD.

DVD playable versions and internet streaming versions can be created using Streaming Video versions of the lesson.

Preparing Streaming Audios

Both .mp3 and .wma versions of Audio files

formats can be used to stream the Audio content for online Net Delivery. (Refer to Audio editors that can be used for Streaming the Audio files).

Convert the files created by using computer based recorders to .mp3 files or WMA files.

The system will permit Bandwidth selections. Low band width selection will reduce the Audio quality by keeping the file sizes low. AS system has to download for streaming the file within the actual Audio timing, the quality is lost by the compression process.

MP3 Audio File Format

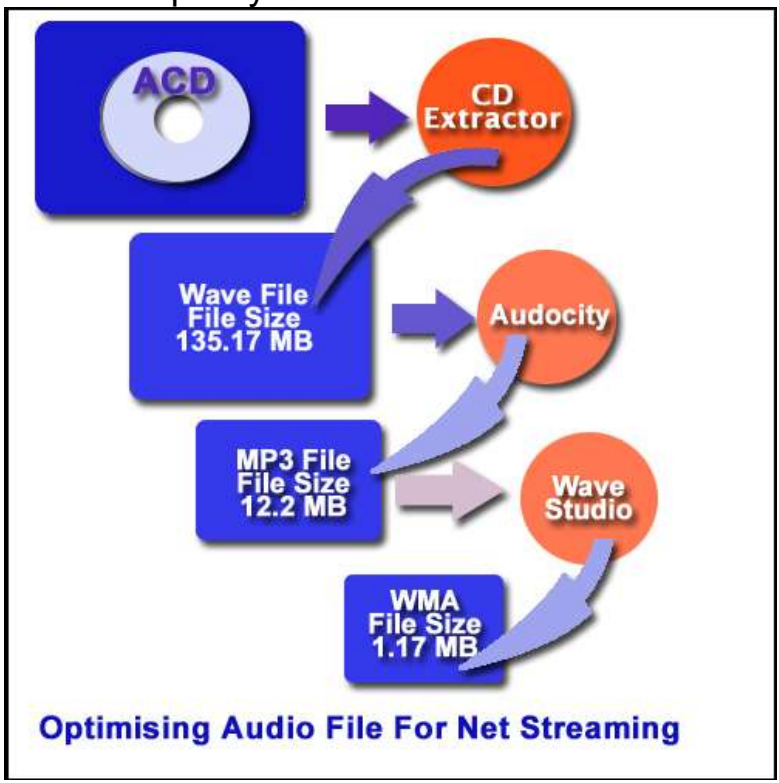
The MP3 movement is one of the most amazing phenomena that the music industry has ever seen. The MP3 format for digital music has had, and will continue to have, a huge impact on how people collect, listen to and distribute music. This encoding format is used to create an MP3 file, a way to store a single segment of audio, commonly a song, so that it can be organized or easily transferred between computers and other devices such as MP3 players.

MP3 uses a compression algorithm that is designed to greatly reduce the amount of data required to represent the audio recording, yet still sound like a faithful reproduction of the original uncompressed audio to most listeners. An MP3 digital file created using the mid-range bitrate setting of 128 kbit/s results in a file that is typically about 1/10th the size of the digital data found on an audio CD. Because MP3 files are small, they can easily be transferred across the Internet.

The MP3 codec shrinks the source file by removing portions of the original signal considered to be essentially inaudible — a technique know as "perceptual coding." The trade-off between sound quality and storage space. The higher the number of kilobytes per second (kbps), the closer in sound quality the MP3 is to the original source — and the larger the file size.

128 kbps MP3s provide a nice balance between sound quality and convenience. The music sounds "good enough," and even a small 1-gigabyte storage can hold about 32 hours of 128 kbps MP3s, or roughly 480

songs. 1 DVD can hold 128 Hours at a good quality Audio and around 200 Hours on tolerable quality.



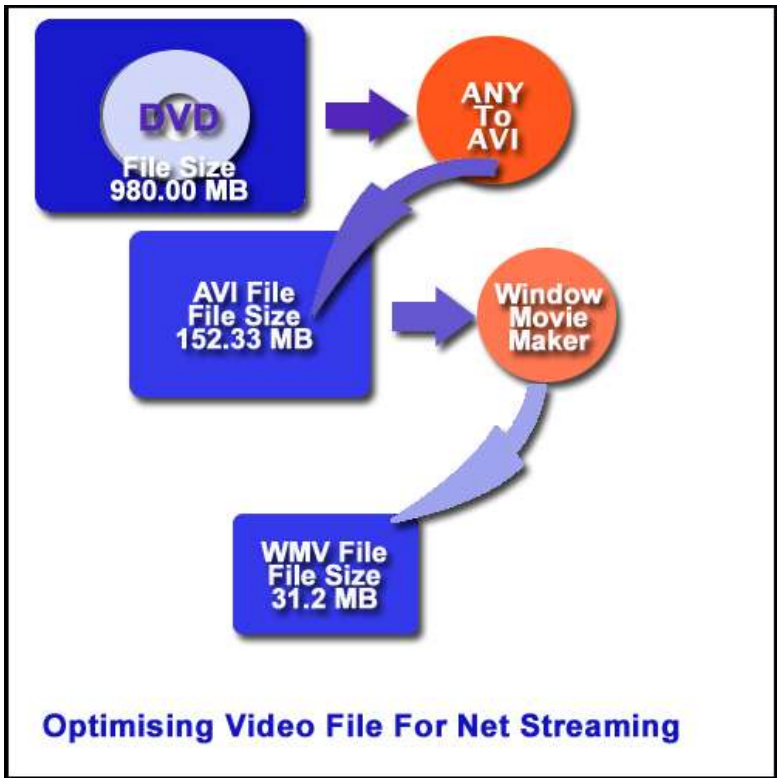
WMA Audio File format

Windows Media Audio (WMA) is an audio data compression technology developed by Microsoft. WMA can sample audio signals at up to 48000 cycles per second (48 kHz) with

up to two discrete channels (stereo). But, WMA Voice, targeted at voice content, applies compression using a range of low bit rates. Audio signals which are deemed to be imperceptible to the human ear may be discarded during the WMA compression process. This results in a loss of audio quality and may introduce undesired compression artifacts not present in the source material. WMA can sample audio signals at up to 48000 cycles per second (48 kHz) with up to two discrete channels (stereo). WMA version 9 introduced variable bit rate (VBR) and average bit rate (ABR) coding techniques, both in which allocate more bits (less compression) to the more complex portions of an audio track. This results in more audio quality uniformity across the track. WMA 9.1 also added support for low-delay audio, which reduces latency for encoding and decoding.

Preparing Streaming Videos

The slide shows can be converted into Streaming Video using products like Window Movie Maker. One can produce Streaming Videos from DVDs and VCD for Net usage using software products that convert them to AVI, WMV, Real Video, Mpeg etc.



AVI Video file Format

Audio Video Interleave, known by its acronym AVI, is a multimedia container format introduced by Microsoft in November 1992 as part of its Video for Windows technology. AVI files can contain both audio and video data in a standard container that allows synchronous audio-with-video playback. AVI files support multiple streaming audio and video.

AVI files do not contain pixel aspect ratio information. Microsoft confirms that many players, including Windows Media Player, render all AVI files with square pixels. Therefore, the frame appears stretched or squeezed horizontally when the file is played back. To address this deficiency, Microsoft diverts users and developers to the Windows Media Encoder. Video makes large files. A single image file can get big by itself, but video consists of frame after frame of images, which keep piling on one after another. Big video files fill up your hard disk, clog up your system when you try to play them.

WMV Video File Format

Windows Media Video (WMV) is a compressed video file format developed by Microsoft. WMV, was originally designed for Internet streaming applications, as a competitor to RealVideo.

WMV is designed to handle all types of video content. The files can be highly compressed and can be delivered as a continuous flow of data (on-line). WMV files can be of any size,

and be compressed to match many different bandwidths (connection speeds).

MPEG Video File Format

As of late 2005, MPEG has grown to include approximately 350 members per meeting from various industries, universities, and research institutions. MPEG's official designation is ISO/IEC JTC1/SC29 WG11. MPEG - Short for Moving Picture Experts Group,

MPEG has standardized many compression formats for VCD, broadcast-quality to support video/audio "objects", 3D content, low bitrate encoding and support for Digital Rights Management.

MPEG algorithms compress data to form small bits that can be easily transmitted and then decompressed. MPEG achieves its high compression rate by storing only the changes from one frame to another, instead of each entire frame. MPEG uses a type of compression, in this some data is removed. But the diminishment of data is generally imperceptible to the human eye.

Distributing Classroom Work

The slideshows of classroom delivery can be distributed recording them as .cld files or can be made to streaming Videos on DVD and VCDs.

DVD, VCD versions can run both on PC and DVD players.

.CLD form can hold, due to compressions, one subject for the whole year in one or two DVDs.

CD/DVD Distribution

.CLD form can hold, due to compressions, one subject for the whole year in one or two DVDs.

The teachers classroom work or slide show forms created through mapping process can be distributed in CDS both for PC use and DVD player use.

Internet Distribution

Streaming Audio/Videos can be uploaded on to the net both for online viewing and for download and offline viewing.

Software Tools

Open Source

DTP Software

Function : *Softcopy Document preparation*

Open Office is a powerful group of office products similar to MSoffice can be downloaded from

http://www.openoffice.org/

Audio Editor

Function: *Audio Editing*

Audacity is used for Audio editing and converting wave audio files to mp3. Audocity can be downloaded from:

http://audacity.sourceforge.net/

LAME mp3 Converter

Function: mp3 converter

http://lame.sourceforge.net/links.php

Function: Audio CD extractor(32,000,000 Downloads)

http://cdexos.sourceforge.net/

Function: Text To Audio

MS Window - Narrator

Illustration/Picture creation

Function: Picture Creation

Photoshop type of open source product can be downloaded from:

http://www.gimp.org/

Video File Converters

Function: Video Conversion.

1. MOV Camera files to AVI can be downloaded from :

http://sourceforge.net/project/showfiles.php?group_id=123082

http://sourceforge.net/projects/alltoavi/

2. All to AVI

http://freeware.intrastar.net/ftp.htm

3. MS Window Support

WINDOW MOVIE MAKER

TEXT TO AUDIO: Narrator

Product from INFOTEL
Function: *Distribution of Classroom work*

EZEENOW - CLD BETA

EZZE NOW BETA VERSION

Commercial Software

For Movie Production: Rexio Movie Maker

For Professional Text to Audio:Textaloud

http://www.textaloud.com

Creative Wave Studio:
Function: Wave to WMA
http://creative.com

Equipment support

Sony Voice recorder: Audio Recording
Apple ipods: Audio/Video Playing
DVD players: Audio/Video Playing
Mini DV Cameras: Video recording

Conclusion

The overview on EasyNow and Technical details are created as general guide lines. These details are subject to change. For practical demonstration visit http://www.cemca.org/easynow/